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FUZZY BASED DESIGN OPTIMIZATION TO REDUCE THE CROSSTALK IN MICROSTRIP LINES

T. AHMAD
- Department of Mathematics, Faculty of Science, University of Technology Malaysia, 81310 Skudai, Johor, Malaysia.
- Electronics Research Group, School of Engineering, Sheffield Hallam University, City Campus, Pond Street, Sheffield S1 1WB, UK

M. A. HOSSAIN
- Department of Computing, University of Bradford, Bradford BD7 1DP, UK.
- Electronics Research Group, School of Engineering, Sheffield Hallam University, City Campus, Pond Street, Sheffield S1 1WB, UK

A. K. RAY
- Electronics Research Group, School of Engineering, Sheffield Hallam University, City Campus, Pond Street, Sheffield S1 1WB, UK

Z. GHASSEMLOOY
- Electronics Research Group, School of Engineering, Sheffield Hallam University, City Campus, Pond Street, Sheffield S1 1WB, UK

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This paper presents an investigation of the design optimization in microstrip lines to reduce the crosstalk level using Fuzzy Logic. In microstrip lines length and spacing, termination conditions of interconnection and output impedance of gates are the major components that cause crosstalk. In order to design high speed printed circuit board (PCB) with optimum interconnection configuration, it is essential to reduce the crosstalk to its minimum tolerance level. A design methodology is proposed to correlate electrical parameters and physical configuration of lines to the crosstalk phenomena. This design is subsequently optimized using Fuzzy Logic to reduce the level of crosstalk. A set of experiments is carried out to demonstrate the capabilities of the design and optimization methods. The effect of the geometrical configuration of the lines on crosstalk, particularly the spacing, is highlighted.

Keywords: Microstrip lines; fuzzy logic; optimization; crosstalk